

Observed Conjunctions of Satellite IV. with Jupiter.

By the Rev. A. Freeman, M.A.

| Date. | Observed ζ . | Predicted ζ . | P-O. | Power. |
|------------------|---------------------------|---------------------------|--------------|--------|
| ^{1892.} | ^h ^m | ^h ^m | ^m | |
| (1) Nov. 3 | 10 6.25 | 10 18.5 | 12.25 | 116 |
| ^{1893.} | | | | |
| (2) Feb. 20 | 6 16.1 | 6 22.0 | 5.9 | 165 |
| (3) Aug. 24 | 13 27.75 | 13 37.9 | 10.15 | 80 |
| (4) Oct. 13 | 15 9.2 | 15 12.7 | 3.5 | 116 |
| (5) Oct. 30 | 8 9.5 (W) | 8 17.5 | 8.0 | 116 |

By a conjunction is meant a position of the satellite upon the least apparent diameter of the planet, produced beyond the disc. In one case, marked (W), the position observed was upon the tangent to \mathcal{U} 's disc at the west end of his equator; in this case 2 hours 25 minutes is assumed to be the interval since conjunction with the polar axis. Usually an equatorial refractor with $6\frac{1}{2}$ inches aperture was employed, except on August 24, when a refractor of 3 inches aperture was used. The predictions refer to Dr. Downing's list of conjunctions in *Monthly Notices*, vol. lii. p. 597. The following distances are mere estimates. Having no clock-work I made no attempt to measure them with the micrometer. Observations on September 10, September 18, October 5, and November 7, 1893, were impeded by cloud:—

- (1) From centre of IV. to north pole of \mathcal{U} was one-third of polar radius of \mathcal{U} .
- (2) The N. limb of IV. separated from south pole of \mathcal{U} by a diameter of IV.'s disc.
- (3) The N. limb of IV. separated from south pole of \mathcal{U} by one-fourth of polar radius of \mathcal{U} .
- (4) Centre of IV. is south of south pole of \mathcal{U} by about one-third of polar radius of \mathcal{U} .
- (5) Centre of IV. is south of south pole of \mathcal{U} by about one-third of polar radius of \mathcal{U} .

The following observations have been supplied to me by Mr. A. Stanley Williams, of West Brighton. They were all made by himself with the aid of his reflecting telescope, having an aperture of $6\frac{1}{2}$ inches. I number them consecutively to my own, with which they may fitly be compared:—

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|------------------|---------------------------|---------------------------|--------------|--------|
| ^{1893.} | ^h ^m | ^h ^m | ^m | |
| (6) Nov. 7 | 11 38.2 | 11 42.2 | 4.0 | 230 |
| ^{1890.} | | | | |
| (7) June 24 | 15 5.3 | 14 57.5 | Shadow | 150 |
| (8) Aug. 30 | 8 32.4 | 8 44.5 | 12.1 | 230 |

